

P21042.A04

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A zoom flash comprising:

a light emitter;

a zoom driver which moves said light emitter along an axis to vary an illumination angle;

a detector which detects a zoom position of said light emitter;

a calculator which calculates a pre-flash emission level according to the detected zoom position so that illuminance on an object at a predetermined distance is substantially constant regardless of a variation of said illumination angle;

a controller which activates said light emitter to emit a preliminary flash emission, before a main flash emission, by supplying a voltage corresponding to said pre-flash emission level for said light emitter; and

a memory in which a maximum guide number that varies in accordance with said zoom position, a constant predetermined reference guide number, and a predetermined reference flash emission level serving as a correction constant are stored,

wherein said maximum guide number, said reference guide number, and said reference flash emission level are stored in said memory, and wherein said calculator calculates a pre-flash emission level using a predetermined relationship between the reference flash emission level, the reference guide number and the following equation:

P21042.A04

~~\_\_\_\_\_~~  $V_{fp} = V_a \times (G_{nos}/G_{no(zoom)})^2$

~~\_\_\_\_\_~~ wherein " $V_{fp}$ " represents the pre-flash emission level;

~~\_\_\_\_\_~~ " $V_a$ " represents the reference flash emission level;

~~\_\_\_\_\_~~ " $G_{nos}$ " represents the reference guide number; and

~~\_\_\_\_\_~~ " $G_{no(zoom)}$ " represents the maximum guide number corresponding to the detected zoom position.

1  
b  
contd  
2. (Previously Amended) The zoom flash according to claim 1, wherein said calculator calculates said pre-flash emission level so that an effective guide number is substantially constant regardless of said variation of said illumination angle.

3. Canceled

4. (Previously Amended) The zoom flash according to claim 1, further comprising a terminal connector via which said zoom flash is electrically connectable to a camera body;

wherein said zoom driver moves said light emitter in accordance with a focal length of a photographing lens of the camera body when said zoom flash is electrically connected to the camera body.

5. (Previously Amended) The zoom flash according to claim 1, wherein said control device controls said light emitter to perform a pre-flash emission in a flat emission mode.

P21042.A04

6. (Currently Amended) A flash photography system having a camera body and at least one zoom flash, said at least one zoom flash being activatable to emit a preliminary flash emission before a main flash emission, wherein said at least one zoom flash comprises:

a light emitter;

a zoom driver which moves said light emitter along an axis to vary an illumination angle; and

a detector which detects a zoom position of said light emitter;

wherein one of said camera body and said at least one zoom flash comprises:

a calculator which calculates a pre-flash emission level according to the detected zoom position so that an illuminance on an object at a predetermined distance is substantially constant regardless of a variation of said illumination angle;

a controller which activates said light emitter to emit a preliminary flash emission by supplying a voltage corresponding to said pre-flash emission level for said light emitter before a main flash emission; and

a memory in which a maximum guide number that varies in accordance with said zoom position, a constant predetermined reference guide number, and a predetermined reference flash emission level serving as a correction constant are stored;

wherein said maximum guide number, said reference guide number, and said reference flash emission level are stored in said memory, and wherein said calculator

P21042.A04

calculates a pre-flash emission level using a predetermined relationship between the reference flash emission level, the reference guide number and the following equation:

~~—  $V_{fp} = V_a \times (G_{nos}/G_{no(zoom)})^2$  —~~

~~— wherein "V<sub>fp</sub>" represents the pre-flash emission level;~~

~~— "V<sub>a</sub>" represents the reference flash emission level;~~

~~— "G<sub>nos</sub>" represents the reference guide number; and~~

~~— "G<sub>no(zoom)</sub>" represents the maximum guide number corresponding to the detected zoom position.~~

1  
B  
Cntrd  
7. (Previously Amended) The flash photography system according to claim 6, wherein said calculator calculates said pre-flash emission level so that an effective guide number is substantially constant regardless of said variation of said illumination angle.

8. Canceled

9. (Previously Amended) The flash photography system according to claim 6, further comprising a terminal connector via which said zoom flash is electrically connectable to a camera body;

wherein said zoom driver moves said light emitter in accordance with a focal length of a photographing lens of said camera body when said zoom flash is electrically connected to said camera body.

P21042.A04

10. (Previously Amended) The flash photography system according to claim 6, wherein said controller controls said light emitter to perform a pre-flash emission in a flat emission mode.

11. (New) A zoom flash comprising:

a light emitter;

a zoom driver which moves said light emitter along an axis to vary an illumination angle;

a detecting device which detects a zoom position of said light emitter;

a calculation device which calculates a pre-flash emission level according to the detected zoom position so that illuminance on an object at a predetermined distance is substantially constant regardless of a variation of said illumination angle; and

a control device which activates said light emitter to emit a preliminary flash emission, before a main flash emission, by supplying a voltage corresponding to said pre-flash emission level for said light emitter.

12. (New) The zoom flash according to claim 11, wherein said calculation device calculates said pre-flash emission level so that an effective guide number is substantially constant regardless of said variation of said illumination angle.

13. (New) The zoom flash according to claim 11, further comprising:

P21042.A04

a memory in which a maximum guide number that varies in accordance with said zoom position, a reference guide number predetermined as a constant, and a reference flash emission level predetermined as a correction constant are stored;

wherein said maximum guide number, said reference guide number, and said reference flash emission level are stored in said memory, and wherein said calculation device calculates a pre-flash emission level using the following equation:

*b1*  
*contd*

$$V_{fp} = V_a \times (G_{nos}/G_{no}(\text{zoom}))^2$$

wherein "Vfp" represents said pre-flash emission level;

"Va" represents said reference flash emission level;

"Gnos" represents said reference guide number; and

"Gno(zoom)" represents said maximum guide number corresponding to the detected zoom position.

14. (New) The zoom flash according to claim 13, further comprising a terminal connector via which said zoom flash can be electrically connected to a camera body;

wherein said zoom driver moves said light emitter in accordance with a focal length of a photographing lens of said camera body in a case where said zoom flash is electrically connected to said camera body.

15. (New) The zoom flash according to claim 11, wherein said control device controls said light emitter perform a pre-flash emission in a flat emission mode.

P21042.A04

16. (New) A flash photography system having a camera body and at least one zoom flash, said at least one zoom flash being activated to emit a preliminary flash emission before a main flash emission, wherein said at least one zoom flash comprises:

a light emitter;

a zoom driver which moves said light emitter along an axis to vary an illumination angle; and

a detecting device which detects a zoom position of said light emitter;

wherein one of said camera body and said at least one zoom flash comprises:

a calculation device which calculates a pre-flash emission level according to the detected zoom position so that an illuminance on an object at a predetermined distance is substantially constant regardless of a variation of said illumination angle; and

a control device which activates said light emitter to emit a preliminary flash emission by supplying a voltage corresponding to said pre-flash emission level for said light emitter before a main flash emission.

17. (New) The flash photography system according to claim 16, wherein said calculation device calculates said pre-flash emission level so that an effective guide number \_\_\_\_\_ is substantially constant regardless of said variation of said illumination angle.

18. (New) The flash photography system according to claim 16, wherein said zoom flash further comprises:

P21042.A04

a memory in which a maximum guide number that varies in accordance with said zoom position, a reference guide number predetermined as a constant, and a reference flash emission level predetermined as a correction constant are stored;

wherein said maximum guide number, said reference guide number, and said reference flash emission level are stored in said memory, and wherein said calculation device calculates a pre-flash emission level using the following equation:

*b!*  
*contd*

$$V_{fp} = V_a \times (G_{nos}/G_{no}(\text{zoom}))^2$$

wherein "Vfp" represents said pre-flash emission level;

"Va" represents said reference flash emission level;

"Gnos" represents said reference guide number; and

"Gno(zoom)" represents said maximum guide number corresponding to the detected zoom position .

19. (New) The flash photography system according to claim 18, further comprising a terminal connector via which said zoom flash can be electrically connected to a camera body;

wherein said zoom driver moves said light emitter in accordance with a focal length of a photographing lens of said camera body in a case where said zoom flash is electrically connected to said camera body.



P21042.A04

*Bid  
concl'd*

20. (New) The flash photography system according to claim 18, wherein said control device controls said light emitter perform a pre-flash emission in a flat emission mode.

---